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March of Dimes
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Working with the Pregnant Teenager:

A Guide for Nutrition Educators

Reaching Out to the Pregnant Teenager

During the 1970's, the number of sexually active teenagers increased by two-thirds and the pregnancy rate continued to increase. In the United States, 1 out of every 10 teenage girls becomes pregnant each year. Of these approximately 1 million teens, about 554,000 give birth. While the number and rate of births to adolescents 15 to 19 years old have decreased, the number and rate to teens under the age of 15 have remained the same.

Pregnancy among teenagers is a serious public health problem. It has grave medical, educational, and psychosocial implications for the young parents, the baby, and society. Some of the adverse complications of early childbearing can be lessened through the support of the teenager's parents, the educational system, and social service agencies. In addition, complications of adolescent pregnancy that may jeopardize the health of the teenager and her baby can be minimized through early and continuous medical and nutritional intervention. The pregnant woman's nutritional status is one of the most important environmental factors affecting her health and the health of her baby.

Many food assistance and health programs that provide nutrition education to the pregnant teenager lack the resources to tailor their nutrition services to specific needs, interests, and lifestyles of the pregnant teenager. The various components of *Reaching Out to the Pregnant Teenager* are intended to narrow this gap. These components are:

1. *Working with the Pregnant Teenager:* a guide for nutrition educators. The guide is designed primarily for nutritionists but will also be useful to other health providers who work with pregnant teenagers. The guide explains why the young pregnant teenager is at high nutritional risk, and identifies nutritional counseling strategies and sample lesson plans targeted for this high-risk group.

2. Three educational posters that present the following concepts to teenagers:
a. Wise food choices are possible within the teenager's current lifestyle.
b. Visiting a doctor regularly, eating a nutritious diet, and avoiding drugs (not prescribed by a physician), alcohol, and cigarettes, are important for a healthy pregnancy.
c. Nutrition is an important factor in fetal development.

Contents

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Introduction

This guide is designed primarily for nutritionists but will also be useful to other health providers who work with pregnant adolescents. It is designed for use with teenagers who are 17 years of age or younger, as they are at greater risk for a poor pregnancy outcome and for psychosocial problems associated with teenage pregnancy. Medical and nutritional risks are perhaps greatest for those under 15 years of age. Older teens 18 or 19 years of age have reproductive outcomes comparable to women in their twenties.

The main premise of this guide is that the pregnant woman's nutritional status is one of the most important environmental factors affecting her health and the health of her baby. The first section of the guide is intended to make nutrition educators more aware of the scope of the problem of teenage pregnancy. It places special emphasis on the nutritional risks and requirements of pregnant teenagers. The remaining sections identify counseling and educational strategies that can be geared to the pregnant teenager's specific nutritional needs and lifestyles. The four sample lesson plans that are included may be used flexibly by either health professionals or paraprofessionals in individual or group sessions.

Facts About Teenage Pregnancy

Pregnancy frequently imposes adult responsibilities on a teenager although emotionally she may still be a child. Often, the teenager is financially unprepared for pregnancy and may be dependent on her family or another resource such as public welfare. Teenage pregnancy may additionally place the young mother and her infant at an educational disadvantage. Finally, the pregnant teenager's own physical growth during her adolescence and her stage of maturity and lifestyle place the young mother and her infant at medical and nutritional risk. The following facts bear out the scope of the problem of teenage pregnancy.

Some of the Psychosocial and Educational Implications for Teenagers and their Families . . .

- About half of the 1.1 million teen mothers are unmarried.
- Of the pregnant teen brides, three in five will be divorced within 6 years.
- The younger the woman is when she first gives birth, the more likely her family will live in poverty.
- The majority of teenage mothers never get a high school diploma.

Some of the Medical and Health Implications . . .

- Most young teens get no prenatal care in the first trimester; 20 percent get none before the third trimester.
- Adolescents who conceive less than 3 years after menarche are at greater risk for poor pregnancy outcome.
- There is a higher likelihood of such problems as pre-eclampsia, anemia, and inadequate or excessive weight gain during pregnancy.
- There are higher risks of complications during labor for younger mothers.
- Compared to women in their early twenties, the maternal death rate is 60 percent higher for adolescents age 14 and under, and 35 percent higher for 15- to 19-year-olds.
- Adolescents are 30 to 50 percent more likely to have low birth weight babies than women in their twenties. Low birth weight is a major factor associated with infant mortality and is also related to physical and mental handicaps.
- Babies of young teens are 2 to 3 times more likely to die in the first year than those born to mothers in their twenties.
- 15 percent of those teens who have a premarital pregnancy conceive again within 1 year. Since perinatal risks increase with each additional birth, older teens may be at greater risk in a repeat pregnancy than younger girls who are pregnant for the first time.

While these statistics create a dismal picture, it is well documented that early intervention through education; supportive family; and social, medical, and nutritional services can stem some of the potential problems. *Promoting Health and Preventing Diseases—Objectives for the Nation*[1] strongly recommends early and continuing prenatal care, and nutrition education and food supplementation as ways to improve the pregnancy outcome of teenagers. An understanding of the numerous factors that may compromise the nutritional status of the pregnant woman and her fetus can help health providers identify pregnant teenagers who are at high risk and help them to plan nutrition intervention strategies accordingly.

Nutritional Risks and Requirements of Pregnant Teenagers

Nutritional Risks

Maternal and fetal nutritional status can be compromised by any number of factors that may characterize the pregnant woman. Nutritional assessment of the pregnant adolescent should include identification of these factors. According to the American College of Obstetricians and Gynecologists, the pregnant woman is likely to be at nutritional risk if at the *onset* of pregnancy:

1. She is an adolescent (particularly 15 years of age or less).
2. She has had three or more pregnancies within 2 years.
3. She has a history of poor obstetric or fetal performance.
4. She is economically deprived (an income less than the poverty line or a recipient of local, State, or Federal assistance, such as Medicaid or the USDA food programs, such as WIC).
5. She is following a bizarre or nutritionally restrictive diet.
6. She is a heavy smoker, drug addict, or an alcoholic.
7. She has a therapeutic diet for chronic systemic disease.
8. She weighed on her first prenatal visit to the doctor less than 85 percent or more than 120 percent of standard weight for her age, height, and stage of maturity.

A pregnant woman is very likely to be at nutritional risk if *during* pregnancy:
9. She has a low or deficient hemoglobin (Hb)/hematocrit (HCT) (low is Hb less than 11.0 g, HCT less than 33; deficient is Hb less than 10.0 g, HCT less than 30).
10. She has inadequate weight gain (either any weight loss during pregnancy, or a gain of less than 2 pounds (1 kilogram) per month in the second and third trimesters).
11. She has excessive weight gain during pregnancy—more than 2 pounds (1 kilogram) per week.
12. She is planning to breast-feed her infant and therefore has increased nutritional demands.

The above risk factors may apply to any pregnant teenager. Adolescence is a time of rapid physical growth. Hence, nutritional requirements increase significantly to support the marked increments in body mass and nutrient stores. The nature and timing of the pubescent growth spurt and sexual maturation vary significantly among teenagers, but generally the adolescent girl achieves physiological maturity about 4 years after menarche.[2] The average age of menarche in the United States is presently 12½ to 13 years. Most teenage girls 17 years of age and older have completed their growth and are physiologically mature. Clearly, then, teenagers who become pregnant within the 4 years after menarche are at high nutritional risk while they continue to add to their own body mass as well as satisfy

the caloric and nutrient demands of pregnancy. Pregnancy among these teenagers may deplete their nutritional reserves, which can compromise their own health and result in poor pregnancy outcome.

While nutrient requirements are substantially elevated, irregular eating habits among teenagers are common, further aggravating the situation. As many as one-fifth of all adolescent girls skip breakfast altogether, while another 50 percent consume poor breakfasts.[3] Frequent meal skipping is usually accompanied by increased snacking. Snack foods often include foods high in salt, sugar, and fat and low in other nutrients. Also, busy schedules result in meals that are purchased away from home from a limited variety of foods. Experimentation characteristic of teen years, peer pressure to conform, and societal pressure for weight control also contribute to poor dietary habits of teenage girls. Furthermore, low income and inadequate living arrangements often limit the teen's ability to follow dietary instructions. If she lives with parents or other adults she may have little control over foods available to her. If she lives alone she may be constrained by lack of money and lack of knowledge about food selection and preparation.

Comprehensive studies of the nutritional status of adolescents [the Ten-State Nutrition Survey and Health and Nutrition Examination Survey (HANES)] have shown iron deficiency to be a major problem in all economic groups. Intake of vitamins A and C and riboflavin was low for a number of teenagers.

Adolescents also have a range of dietary deficits and excesses in energy that contribute to underweight and obesity. Inadequate calorie intake among teenage girls is of particular concern. The HANES data show that females 15 to 17 years of age consume an average of 350 calories below the Recommended Dietary Allowance (RDA). Studies on small groups of pregnant teenagers have also revealed these dietary deficiencies in calories, iron, and vitamin A as well as calcium.

Nutritional Requirements

Unfortunately, in spite of the awareness of the high risks of adolescent pregnancy, little information is available on the nutritional needs of pregnant teenagers. Estimates are usually made by adding the recommended increment for the pregnant adult woman to the RDA for nonpregnant teenagers 11 to 14 or to the RDA for nonpregnant teenagers 15 to 18. (see chart on the following page).

Individual adolescents vary markedly in their growth patterns, body builds, exercise habits; thus, it is difficult to predict energy requirements with great accuracy. Indeed, in one study of pregnant teenagers, energy expenditure was found to vary from 38 kilocalories to 50 kilocalories per kilogram per day.[4] It was also observed that energy requirements during pregnancy appear to correlate directly with the energy cost of weight movement that accompanies increases in body mass. Since the body mass of a woman increases about 20 percent during pregnancy, activities that demand a lot of movement may require as much as 20 percent more energy. With such wide variations in energy requirements, a satisfactory weight gain is the

best assurance of adequate caloric intake. This weight gain (over time) combined with an assessment of activity, caloric consumption, and stage of pubertal maturation should be employed when assessing adequacy of energy intake. In addition, special consideration should be given to the pregnant teenager who is underweight before pregnancy. This means she will need to gain more than the 22 to 28 pounds usually recommended for pregnancy. Overweight teenagers entering pregnancy should not attempt to restrict weight gain below the recommended 22 to 28 pounds.

Energy consumption affects protein status since energy needs take first priority in metabolism. If insufficient carbohydrates and fats are consumed, some dietary protein will be catabolized for energy as well. Higher protein intakes are recommended for teenagers whose own growth is continuing during their pregnancy; for pregnant teenagers 15 to 18 years old, the recommended dietary allowance is 1.5 grams of protein per kilogram of bodyweight; and for younger girls, 1.7 grams per kilogram is suggested.

Pregnant teenagers also have increased needs for certain vitamins and minerals as compared to older pregnant women. These include the vitamins thiamin, riboflavin, niacin and vitamin D, and the minerals calcium and phosphorous. There are no differences between the recommended intakes of pregnant adults and pregnant adolescents for vitamins A, E, B_{12}, and folacin and the minerals iron, magnesium, iodine, and zinc.

Estimated Daily Nutrient Needs of Pregnant Adolescents Based on the Increment Suggested for Pregnancy in Mature Women[5]

Nutrient and Units	Pregnancy Increment	Total Estimated Need	
		11-14 yr	15-18 yr
Energy (kcal)	300	2,500	2,400
Protein (g)	30	78 (1.7 g/kg)	82 (1.5 g/kg)
Vitamin A (mcg RE)	200	1,000	1,000
Vitamin D (mcg)	5	15	15
Vitamin E (mg TE)	2	10	10
Vitamin C (mg)	20	70	80
Thiamin (mg)	0.4	1.5	1.5
Riboflavin (mg)	0.3	1.6	1.6
Niacin (mg NE)	2	17	16
Vitamin B_6 (mg)	0.6	2.4	2.6
Folacin (mcg)	400	800	800
Vitamin B_{12} (mcg)	1.0	4.0	4.0
Calcium (mg)	400	1,600	1,600
Phosphorus (mg)	400	1,600	1,600
Magnesium (mg)	150	450	450
Iron (mg)	30-60[a]	30-60[a]	30-60[a]
Zinc (mg)	5	20	20
Iodine (mcg)	25	175	175

[a]This intake cannot be met by the iron content of habitual American diets; the use of a supplement is recommended.

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Approaches to Nutritional Counseling

Nutritional counseling involves an exchange between the nutritionist and teenager during which the teenager can be guided toward *realistic and mutually agreed upon nutritional goals*. Because the pregnant teenager is at high risk, attempts should be made within the framework of available staff and other resources to provide *frequent 1 to 1 exchanges between the health professional and the pregnant teenager*. Counseling should begin as soon as possible after pregnancy is confirmed, since the first trimester of pregnancy is a critical period for the development of the fetus. Coordination of services with other members of the health team such as physicians, nurses, and health educators can help provide early and comprehensive health care for the pregnant teenager.

Standard components of nutrition services teenagers should receive include a nutritional and dietary assessment, formulation of a nutritional care plan, and followup and referrals.[1] In addition, the social dynamics and individualized approaches taken in counseling are important determinants of the counseling outcome. These include: 1) establishing rapport with the teenager; 2) assessing the teenager's values, interests, and lifestyle as well as nutritional needs; 3) translating this information into realistic goals; 4) involving family and friends in supporting these goals; and 5) guiding the teenager toward making wise food choices on her own.

Set the Stage for Successful Counseling by Establishing Rapport with the Teenager.

Of great importance in any counseling setting is the establishment of rapport with the teenager. Unless a relaxed nonthreatening atmosphere is created for discussion, little successful interchange can take place.

In striving to create a relaxed and nonthreatening atmosphere, you as counselor should be personable, nonjudgmental, nonauthoritarian, and show support and empathy for the client. Using the following counseling skills will help put the teenager at ease, and make her more open to communication. For instance:

- Choose a physical setting with comfortable chairs, attractive decor, and privacy.

- Start off the counseling session with a congenial greeting and some social conversation.

- Show concern for the teenager as a person. Ask the teen nonthreatening questions about her interests and extracurricular activities.

- Explore with the teenager her present concerns and adapt nutritional counseling strategies accordingly. For example, you may decide to reschedule an initial nutritional counseling session if you determine that

the teenager has just learned that she is pregnant and is too overwhelmed with emotions to be receptive to nutritional counseling.

• During the counseling session, ask open-ended questions to draw out the teenager. For example, ask, "How easy will it be for you to make the changes in your diet that we discussed?" Rather than . . . "Do you think you can follow this diet?"

• Use attentive listening skills. Periodically, you may want to repeat or paraphrase the teenager's statements to show her that you are understanding and listening to what she is saying.

Mastering counseling skills often takes a great deal of practice as well as feedback on counseling performance. Feedback on counseling skills can be obtained informally from observations by peers or formally through a counseling workshop or course. Opportunities to view oneself on video tape in a counseling situation is also a helpful way of improving counseling skills.

Individualize Nutritional Goals in Counseling.

Although there are some general guidelines for prenatal nutrition that are applicable to most adolescents, an *individual* assessment of the teenager's nutritional and other relevant needs should form the basis for nutritional counseling. For instance, you might take an individualized approach on whether to encourage a teenager to breast-feed after considering the following:

- What are the teenager's feelings about breast-feeding?
- How old is the teenager?
- How responsible is the teenager?
- How psychologically and physiologically mature is the teenager?
- If she has inadequate *nutritional stores,* would breast-feeding place an undue stress on her?
- How would breast-feeding affect her going back to school?
- How would it affect her other activities?
- Would it be feasible for her to breast-feed for a short period of time?

Teenagers often are self-conscious and private about their bodies. Therefore, breast-feeding may be very difficult psychologically, especially for young teenagers. But all teenagers should be made aware of the nutritional, medical, and emotional benefits of breast-feeding the baby. Those who are considering breast-feeding should receive continuing support and guidance.

Set Specific and Realistic Nutritional Goals.

An assessment of the pregnant adolescent's nutritional status and diet provides the foundation upon which the counselor and teenager can arrive at dietary recommendations. These recommendations should be specific and measurable. For instance:

Eat at least one serving of a good source of vitamin C every day from this list of vitamin C-rich foods. Restrict soft drinks to one drink each day. Try out one of these fast breakfast ideas at least once a week.

Dietary recommendations should also be realistic. They should build upon what foods the teenager likes to eat and the setting she eats them in. For instance:
The next time you're at a fast-food restaurant, try a cheeseburger with lettuce and tomato instead of just a plain hamburger.

Attempting a complete dietary overhaul in a half-hour session will rarely meet with success. Rather, ask initially for small comfortable changes that will allow chances for success.

Your approach in counseling might differ according to the teenager's stage of pregnancy. Often in the early stages of pregnancy, the teenager is preoccupied with herself and what's happening to her physically and emotionally. But it is important to discuss nutrition and fetal development as early as possible in the first trimester, when most major organ systems of the baby are formed. In the latter months of pregnancy, counseling strategies that focus on the well-being of her baby and preparing a future with her baby are likely to be well received.

Possible Topics for Early Months of Pregnancy.

• How eating right can help the teenager to feel and look better, and to better cope with the stresses of her pregnancy and delivery.

• Ways to deal with discomfort such as morning sickness and nausea during her pregnancy.

• Weight gain during pregnancy (how much she should gain, the rate at which she should gain, where the weight goes, and the present stage of fetal development).

• Maternal fetal exchange system. Help the teenager understand how her baby gets nutrients from the food she eats.

Possible Topics for Later Months of Pregnancy.

• How eating right can help the baby to be of normal weight, and be healthier during the first months of life.

• Breast-feeding and formula feeding.

• Nutrition-related parenting skills.

• Alleviation of discomforts in latter part of pregnancy—constipation, sleeplessness, leg cramps, rapid weight gain, frequent urination.

Explore with the Teenager Her Feelings about Her Pregnancy and Her Attitudes about Food. Help the Teenager to Understand the Reasons for Her Food Choices and to Evaluate These.

In the early stages of counseling, it is important to explore with the teenager her views about food and its relation to pregnancy. Drawing out the

teenager's attitudes about food will help both the counselor and teenager identify the reasons for her food choices. Two questionnaires follow that you can use to assess teenagers' feelings about food. You might use these as a screening tool before counseling or as an activity you will follow with a discussion in a group setting.

Questionnaire I

Read each of the following unfinished sentences. Have the teens write down their response after each sentence is read. Discuss responses.

1. When I think of food I . . .
2. I eat because . . .
3. I like to eat when . . .
4. If I want to lose weight I . . .
5. My figure is . . .
6. Breast-feeding is . . .
7. Breakfast is . . .
8. I would really like to know more about . . .
9. My idea of a well-fed baby is . . .
10. When it comes to food, the responsibilities of the baby's father are . . .
11. Nutrition is . . .

(Adapted from *Nutrition during Pregnancy and Lactation.* Nutrition Education and Training Program. Connecticut.)

Questionnaire II
Eating Behavior and Health

Most of us have strong feelings about food. Recognizing these feelings and values can help you understand some of your values that affect your eating habits. There are no right or wrong answers.

On a scale of 1 to 5, indicate how you feel about the following statements.

	Strongly Agree				Strongly Disagree
1. I like to eat.	1	2	3	4	5
2. The food I eat affects my appearance.	1	2	3	4	5
3. I like trying new and unusual foods.	1	2	3	4	5
4. I think thin is beautiful.	1	2	3	4	5
5. I am willing to cut down on foods that are not good for me.	1	2	3	4	5
6. I usually consider nutrition when I choose a food.	1	2	3	4	5
7. I eat more when I am bored, frustrated, unhappy, or angry.	1	2	3	4	5
8. I would like to lose weight.	1	2	3	4	5
9. It doesn't matter what a girl eats now; she can make up for it when she becomes pregnant.	1	2	3	4	5
10. I prefer eating alone.	1	2	3	4	5
11. I feel a fat baby is a healthy baby.	1	2	3	4	5
12. I like homemade foods better than foods in restaurants.	1	2	3	4	5
13. I think expectant fathers should help the woman eat well during pregnancy.	1	2	3	4	5
14. I think women eat better when they become pregnant.	1	2	3	4	5
15. I like to reward myself with foods.	1	2	3	4	5

(From *Nutrition during Pregnancy and Lactation.* Nutrition Education and Training Program. Connecticut.)

Identify and Work toward Dispelling Myths about Food and Pregnancy, Particularly Those that Are Harmful.

You might also explore with the teenager her beliefs about food and pregnancy. Myths about food and pregnancy abound among teenagers who lack access to accurate health and nutrition information. Myths may also be specific to a person's culture, such as the belief in "hot" and "cold" foods characteristics of some Asian and Hispanic cultures. The counselor should attempt to identify common and culture-specific myths among teenagers. *Examples of common myths among teenagers are: 1) the less you eat, the smaller the baby and the easier the labor and delivery; 2) after a pregnant woman gains 8 pounds for the baby, the rest she gains is fat; and 3) breast-feeding causes a woman's breasts to lose their shape.* Often, myths can be dispelled in counseling by presenting accurate nutrition information. Alternatively, teenagers might discuss food myths in a group setting. The following quiz on "Fact or Fallacy" can be used to dispel common myths that teens hold about food and pregnancy. It can be used as both a screening and educational tool either in a counseling or group session.

Fact or Fallacy

1. (T) Breastmilk or infant formula is all my baby needs for its first few months.
2. (F) After I gain 8 pounds for the baby during pregnancy, the rest I gain is fat.
3. (T) Drinking alcohol can be harmful to my unborn child.
4. (T) It's okay to continue activities that give me exercise while pregnant.
5. (F) If I breast-feed, my breasts will lose their shape.
6. (F) Women who have small breasts can't produce much milk.
7. (T) Exercise is good for my health and my looks.
8. (F) Eating foods such as strawberries and lobster will cause birthmarks on my baby.
9. (T) My emotions affect what I eat.
10. (T) I shouldn't restrict calories during pregnancy.
11. (T) Smoking can be harmful to my unborn child.
12. (F) The foods that I crave are always the ones my body needs.

Identify the Teenager's Motivation for Maintaining Positive Food Practices or for Dietary Change. These May Include Not Only Better Health, but Also Appearance, Feeling Better, Being Accepted by Peers, and a Positive Self-Concept. Through Nutrition, Promote a Positive Self-Concept of the Teen as an Individual and a Mother.

Incentives for maintaining a good diet or making dietary changes vary from person to person. For some teenagers, learning the connection between good nutrition and their health and their baby's health may be sufficient motivation to maintain or to improve their diet. You might also draw a connection between good nutrition and the mother's having a healthy and

smart baby since this is important to many teens. Most teenagers desire a positive body image. Therefore, tying in exercise and nutrition with fitness and a good appearance and getting back into shape after pregnancy is an effective motivator for many teens. Further, most teenagers want to be accepted by their peers. Peer acceptance may be particularly important for the pregnant teenager who feels isolated from her friends as a result of pregnancy. Peer activities often involve food and center around fast-food outlets. Certain snack foods and fast foods have group appeal among teens. To maximize chances of success in dietary counseling, try to identify and work into any dietary recommendation foods that are popular among teenagers, such as pizza, hamburgers, or ice cream. You might also become familiar with fast-food outlets in your community and recommend to the teenager those with a wide selection of foods, such as fast-food outlets with a salad bar, or trimmings such as tomato, lettuce, onion, and coleslaw to add to sandwiches and burgers. Finally, you can promote a positive self image of the teenager as an individual and a mother by providing praise for healthy food choices made independently by the teen.

Translate Good Nutrition into the Teenager's Lifestyle.

Irregular eating patterns and unusual dietary practices are characteristic of teenagers. Their busy schedules and erratic lifestyles often result in sporadic eating. They often skip meals, snack frequently, and eat away from home.

Provide Breakfast Ideas that are Quick and Convenient. Encourage the Teen to Come Up with Her Own Suggestions. If She Dislikes Standard Breakfast Fare, Offer Unconventional Alternatives.

Breakfast Ideas

Something Different
pizza
yogurt fruit crunch*
cheese toast
fruit with cheese, cottage cheese, or ice cream

Something Easy and to Carry Out
orange punch*
peanut butter and sliced bananas on whole wheat bread
hard boiled egg
leftover meat or poultry sandwich
dinner rolls or cornbread with cheese

Teens often skip meals, particularly breakfast. Surveys have revealed that as many as one-fifth of all adolescent girls skip breakfast and another 50 percent have poor breakfasts.[2,3] Among the reasons teens give for skipping breakfast are lack of time, poor morning appetite, and desire to lose weight. Teenagers who ordinarily skip breakfast might be encouraged to eat a favorite food in the morning, or to carry something with them if they are on the go. For teenagers in early pregnancy who have morning sickness, you might suggest that the teen try eating "soothing" foods in the morning such as soda crackers or dry toast.

*Recipes provided on page 16.

Breakfast or Snack Ideas

Yogurt Fruit Crunch
It's smooth, crunchy, and sweet.

1 cup plain lowfat yogurt
1/2 cup dry cereal (granola type or dry crunchy cereal)
1/2 cup fruit, fresh or canned in light syrup or natural juices

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Spoon layers of cereal, yogurt, and fruit into two individual bowls. Makes 2 servings, 1 cup each.

Orange punch
A quick, refreshing drink for any time of day.

5 cups cold water
1 cup nonfat dry milk
12-oz can concentrated unsweetened orange juice

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1. Mix water with milk powder and add concentrated juice.
2. Stir well or blend.
3. Chill.

Makes four servings, approximately 14 oz each.

Identify Nutritious Snacks that Teenagers Can Eat as Substitutes for Low Nutrient Density Snacks. For the Teenager Who Doesn't Like to Eat Much at One Meal, Suggest Frequent Snacks during the Day.

Frequent snacking characterizes the teenager's eating pattern. As much as one-fourth of adolescent girls' total daily caloric consumption typically comes from snacks.[4] These snacks frequently include foods high in salt, sugar, and fat, and low in other nutrients. You can suggest to the teenager substitutions for low nutrient snacks. These substitutions can be obtained from home, the convenience store, or a vending machine. For example, the following foods are often available in vending machines: crackers, peanuts, or fruit juices. Success in improving the teenager's snack choices can often be enough to meet nutritional goals.

For Teens Who Enjoy Fast Foods, Provide Tips for How to "Round Out" a Fast Food Meal. The Teenager Might also Be Advised to "Pick Up" Nutrients Missing in Their Fast Food Meals in Other Foods Eaten during the Day.

When eating at a fast-food outlet, substitute milk for a cola, add a salad . . . or coleslaw, bring along a piece of fresh fruit.

Teenagers often eat snacks and meals away from home, in a school or social setting, and with increasing frequency in fast-food outlets. Frequently, fast-food outlets offer a limited selection of vegetables and fruits.

When Counseling Teenagers Who Follow Unusual or Fad Diets, Reinforce the Positive Aspects of the Diet While Addressing Those Practices That May Be Harmful. Make Recommendations for Modifying a Diet Within the Framework of What Is Acceptable to the Teen, Without Causing Undue Stress. Otherwise, Consider Dietary Supplements.

Adolescents are particularly vulnerable to changing food habits and attitudes. The media and peer pressure make them more susceptible to fad diets. Girls may be particularly vulnerable to diet schemes in their efforts to maintain a slender figure. Some adolescents become advocates of natural foods, organic foods, high fiber diets, and entire diet regimens based on cults or religious beliefs.

Some of these diets such as vegetarianism, may have positive health aspects. Vegetarian diets are discussed in "Nutrition Services in Perinatal Care," (reference on page 7) as follows:

"Vegetarian diets may be comprised of only plant foods, that is, vegan diet; or may merely exclude meat, poultry, or fish, that is, an ovo-lacto vegetarian diet. The latter type can be adequate in all nutrients and represents no risk to the pregnant woman as long as the diet includes a variety of legumes, nuts, dairy products, eggs, whole-grain products, fruits, and vegetables. The vegan diet, on the other hand, will be lacking vitamin B_{12} and other nutrients found in high concentration in animal food sources. These include vitamin B_6, riboflavin, iron, calcium, and zinc. A vegan diet is not advisable for pregnant or lactating women. In the event that vegan diets are followed, the nutrient content of the diet should be carefully evaluated and nutrient supplements prescribed where indicated."

Other diets that teenagers adopt may have harmful effects on health. In this category are extreme weight loss diets. These are becoming increasingly popular among figure-conscious young women. You should attempt to become familiar with trendy diets and be able to evaluate their nutritional strengths and weaknesses with the teenager.

Inform the Teenager of the Possible Consequences of Smoking, Drug Use, and Alcohol and Caffeine Intake on Her Health and Her Baby's Health.

Smoking, and the use of alcohol and drugs are part of the social scene for some teenagers. Smoking among teenage girls has increased in the last decade; the only group with increased smoking trends in the United States. Increasing numbers of teenagers are becoming chronic alcohol users. One study showed that 39 percent of all school adolescents are moderate drinkers and 28 percent are considered to be problem drinkers.[5] Some teenagers' lifestyles also include the use of marijuana and "harder" drugs. In addition, teenagers often consume food and drink products containing caffeine, especially cola drinks. The use of drugs, tobacco, alcohol, and caffeine has been implicated in poor outcomes of pregnancy. Many teenagers are unaware of the recent findings about the effects of these substances on fetal development. They need information, counseling, and referral to discontinue dangerous habits.

Involve the Teenager's Family in Counseling Sessions. Encourage Them to Provide Support to the Teenager and to Improve Access to Nutritious Food in the Home.

The teenager's family may influence her food choices through their food attitudes and food preferences. Most pregnant teenagers live at home with their parents and do not regularly participate in the household's food buying and preparation. Consequently, the teenager's mother or other key family members play an important role in determining the foods the teenager has access to in the home. Encourage the teenager's family to help her maintain or modify her diet. For example, if the teenager's mother prepares most of the meals, you might suggest to the mother menu and recipe ideas or provide those ideas to the teen to take home. Another way to enlist the family's support is to capitalize on the parent's role as gatekeeper of food brought into the house. The teenager can still have the freedom to choose what to eat within the framework of a varied selection of nutritious food provided at home. Involving the family in counseling can also help you assess the teenager's home environment.

In some cases, you must decide whether or not to include the family in the entire counseling session. Some teenagers will communicate more openly with you if their parents aren't present at the first session. Always encourage and facilitate communication between the adolescent and her family.

Help the Teenager Evaluate Her Situation Starting from Her Own Perspective. Emphasize to the Teenager Her Responsibility for and Control over Her Own and Her Child's Care. Provide Opportunities for Independent Decisionmaking and Problem-Solving That Will Enhance Healthful Food Choices for a Lifetime.

It is important to explore with the teenager her views about food and her pregnancy. Often her perceptions of her needs differ from yours. By helping the teen understand the reasons for her food choices, she can then be guided to assume greater responsibility for them. You might actively involve the teenager in evaluating her food choices by having her complete 3- or 5-day food records. Then, using a daily food guide, assess the nutritional strengths and weaknesses of her choices with her. You might also help the teenager toward self-sufficiency by teaching her food budgeting, meal planning, and cooking skills. Further, in the latter months of pregnancy you can play an important role in the teenager's development of parenting skills.

In summary, "the basic prerequisite for successful nutritional changes is a realistic and honest statement to the teen that she, not the nutrition counselor, bears the responsibility for the change. By reinforcing the pregnant teenager's sense of control over her own health, the nutritionist will contribute not only to better diet habits, but also to the patient's greater sense of self-worth."[6]

Footnotes

1. "Guide for Developing Nutrition Services in Community Health Programs." DHEW Pub. No. (ASA) 78-5103, U.S. Department of Health and Human Services, Public Health Service, Health Services Administration, Bureau of Community Health Services. Rockville, MD 20857.
2. Spindler, E. B. and Acker, G. "Teenagers tell us about nutrition." *Journal of the American Dietetic Association* 43:228, 1963.
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4. Hampton, M. C., Huenemann, R. C., Shapiro, L. R., and Mitchell, B. W.: "Caloric and nutrient intakes of teenagers." *Journal of the American Dietetic Association* 50:385, 1967.
5. "Nutrition and the Adolescent." *Nutrition and Health,* New York, Columbia University, 1980, Vol. 2 No. 5.
6. Gardner, L. "Nutrition Counseling and the Pregnant Adolescent." *Health Education Bulletin.* National Clearinghouse for Family Planning Information. July 1980. No. 17.

Additional Reading on Nutritional Counseling

1. "Guide for developing nutrition services in community health programs." U.S. Department of Health and Human Services, Public Health Service, Health Services Administration, Bureau of Community Health Services, Rockville, MD 20857, 1978.
2. "Heart-to-Heart: A manual on nutrition counseling for the prevention of coronary heart disease." National Heart, Lung and Blood Institute. American Heart Association, Washington, D.C. 1981.
3. Science to Practitioner. Reprints of the following articles from the *Journal of the American Dietetic Association.* "Behavioral science and nutrition: A new perspective. Social-psychologic perspective in motivating changes in eating behavior." "Applying behavioral methods to nutritional counseling." U.S. Department of Health and Human Services. Public Health Service. National Institutes of Health. U.S. Government Printing Office: 1981-0-341-132/3520.
4. Zifferblatt, S. M. and Wilbur, C. S. "Dietary Counseling: Some realistic expectations and guidelines," *Journal of the American Dietetic Association* 70:591, 1977.
5. Worthington, B., Vermeersch, J. and William, S. "Nutrition in Pregnancy and Lactation," St. Louis, The C. V. Mosby Company, 1977, p. 129.

Sample Lesson Plans

Topics discussed in individual counseling sessions can be reinforced in group settings with pregnant teenagers. Group sessions involving teens have the advantage of allowing the teenager to meet and interact with other adolescents who have similar needs and interests. Some teens who are reluctant to come to individual counseling sessions may come to a group that allows them opportunities to socialize. The group sessions may also serve as a support group for teenagers to develop new behaviors such as breast-feeding and other parenting skills.

Certain topics should be emphasized in both group and individual sessions with teenagers.

- The importance of good nutrition to the mother's and baby's health*
- Planning nutritionally adequate meals and snacks*
- Weight gain and fetal development*
- Common problems during pregnancy (for example, nausea)
- The adverse effect of drugs, alcohol, caffeine, and smoking on the unborn child*
- Infant feeding and care

Sample lesson plans for the topics that have asterisks follow. These can be used flexibly in group or individual sessions by either a health professional or paraprofessional. Optional activities are presented in some of the lesson plans under the heading, *Variations*. Teenagers frequently have short attention spans. The instructor may choose to shorten these lesson plans by conducting fewer activities in one session or showing an audio-visual in two sessions.

Lesson 1: How a Baby Grows

Target Group:
Teenagers in the Early Stages of Pregnancy

Objectives:
- At the end of the session, teens will explain why a woman should gain 22 to 28 pounds during pregnancy and how their food intake affects their weight gain and fetal development.
- At the end of the session, teens will understand the maternal fetal exchange system.

Materials Needed:
"How a Baby Grows" poster contained in this packet.

Learning Activities:

1. Use the "How a Baby Grows" poster to discuss the stages of fetal development and the role of nutrition in fetal development. Help teens to identify the stage in fetal development that corresponds to their stage in pregnancy.

2. Many teens do not know how the fetus is nourished. Discuss with them the maternal and fetal exchange system including the role of the placenta and increased blood volume. Understanding the maternal and fetal exchange systems can also help teens see how drugs or alcohol get from the mother to the fetus. Explain that most of the substances a woman eats or drinks passes through the placenta to the fetus. Therefore, no medicine or drugs should be taken at this time without the advice of the physician.

3. Pregnancy may not be a reality to a teen who does not yet "show" or feel life. Thus, the need to change her diet may not seem important to her in the initial stages of pregnancy. Explain the importance of fetal development in the first trimester, when all major organs are formed. This will help make the pregnancy a reality for the teen.

4. Maternal and fetal nourishment in the second and third trimesters is important particularly for brain development and for added weight for the baby. A woman's nutritional status during pregnancy can influence how her child learns throughout life. As adolescents become larger and more uncomfortable they begin to worry about their ability to deliver the baby. The myth—the smaller the baby, the easier the labor and delivery—needs to be dispelled. Emphasize the importance of continuing the regular diet and the weight gain during these trimesters.

5. Ask students what information their mothers received about weight gain during their pregnancies. Explain that at the time when their mothers were pregnant, it was believed that a woman should restrict her weight gain to make her delivery easier. We now know this is not true. We now know that a certain amount of weight must be gained to allow for maternal tissues as well as the baby's growth. Weight gain should be gradual.

6. Explain and ask questions about how the weight gain during pregnancy is distributed. Address the myth that after a woman gains 8 pounds for the baby, the rest is just fat. Stress that a woman should gain between 22 and 28 pounds during pregnancy, primarily in the second and third trimester. Also stress that pregnant teens may vary in their rate of weight gain depending on the teenager's growth pattern. This weight gain should come from consuming foods of high nutritional value. Stress that a woman should never go on a diet during pregnancy. Breast-feeding helps a woman get back to her prepregnancy weight more quickly.

Evaluation:

1. Quiz (written or oral) teens on their understanding of why a pregnant woman should gain 22 to 28 pounds during pregnancy. Ask teens if they need to gain more than 7 to 8 pounds. Ask teenagers how their food intake affects their weight gain and the development of their unborn child.

2. Have teens use models or puzzles to demonstrate their understanding of the distribution of weight gained during pregnancy.

(Lesson plan adapted from "Nutrition during Pregnancy and Lactation." Connecticut Nutrition Education and Training Program.)

Variation on the Lesson Plan:

Teenagers are often responsive to audiovisuals that show the actual development of the fetus.

1) "Life Before Birth"
Purchase: $50 per set of records (ES4-R)
$50 per set of cassettes (ES4-C)
2) color and sound film strips
27 minutes each
Discussion Guide available.

Step-by-step fetal development is explained through a striking combination of Nilsson's photographs—originally published in LIFE—special diagrams, and easy-to-follow authoritative narration. The result is a dramatic exploration of life before birth that will fascinate teenagers.
Time-Life Video
100 Eisenhower Drive
Paramus, New Jersey 07652

Lesson 2: Nutrition for the Mother-To-Be

Target Group:
Pregnant Teenagers

Objectives:
1. Teens will identify at least one way they plan to improve their diets.
2. Teens will state a reason why it is so important for the pregnant teenager to eat well.

Materials Needed:
Audiovisuals on nutrition during pregnancy such as:

"Inside My Mom"
Purchase: $10 per filmstrip
$15 per slide set
Filmstrip/color slides with audio cassette, 8 minutes
1975

Tells what kind of nutrition a mother-to-be provides to her baby. The cartoon takes us through a normal day of a young mother-to-be, commenting on how she eats and lives, and how this affects a fetus.
March of Dimes Birth Defects Foundation
Supply Division
1275 Mamaroneck Avenue
White Plains, New York 10605

or

"Great Expectations"
Purchase: $250.00
Free Loan
16 mm film, sound, color,
23 minutes
16 pp teacher's guide,
30 wall charts, 16″ x 14″
1975

Explains the benefits of good nutrition, both during pregnancy and breast-feeding. The women in the film are drawn from a variety of socioeconomic, racial, and ethnic backgrounds. Accompanied by teaching materials to help form a complete nutritional instruction program.
March of Dimes Birth Defects Foundation
Supply Division
1275 Mamaroneck Avenue
White Plains, New York 10605

The instructor may want to show this film in two sessions to shorten the lesson.

Or an audiovisual on nutrition for the teenager:

"Look Before You Eat"
Purchase: $355.00
16 mm film, sound, color
22 minutes

Discusses the amounts of sugar, salt, and fat in foods typically consumed by teenagers. High school students discuss the importance of becoming aware of "low nutrient density" foods, and how they can change some of these foods to more nutritious food selections.
Churchill Films
662 N. Robertson Boulevard
Los Angeles, California 90069

This film is also appropriate for postpartum teenagers.

Learning Activities:
After the audiovisual is shown, have teens write down three ideas that they learned from the audiovisual.

Suggested Evaluation Activities:
Teens will write down or discuss three of the positive eating habits they feel they have, and at least one habit they want to improve on for their next appointment.

Variations on the Lesson Plan:
1) Games, puzzles, and quizzes on nutrition
Light-Up Nutrition Quiz
Purchase: $20.00

Teaches nutrition to patients on two brightly colored panels that light up when you touch the pointer to the correct answer.
March of Dimes Birth Defects Foundation
Supply Division
1275 Mamaroneck Avenue
White Plains, New York 10605

2) Have teens evaluate their own eating habits with the attached Nutrition Self-Assessment Questionnaire and Score Interpretation Sheet. Discuss with each teen her score and provide helpful hints to improve her eating habits.

Nutrition Self-Assessment Questionnaire

This questionnaire will help you to identify the strengths and weaknesses in your diet.

Please circle the symbol (○ △ □) under your response to each question.

1. Do you eat a wide variety of foods - including selections of (a) fruits and vegetables (b) milk products (c) whole grain products and (d) meats, poultry, fish, eggs, dried beans, and peas?

   Wide Variety ○ | Some Variety △ | Little Variety □

2. Were you overweight or underweight at the time you became pregnant?

   Less than 5 pounds ○ | 5-19 pounds △ | 20 pounds or more □

3. How often do you eat breakfast?

   5-7 times per week ○ | 3-4 times per week △ | 1-2 times per week □

4. Do you eat foods high in dietary fiber (like bran, whole grains, fresh fruits, and vegetables)?

   Daily ○ | 4-6 times per week △ | Less than 3 times per week □

5. Do you eat a lot of sweet or salty snack foods?

   Rarely ○ | Occasionally △ | Frequently □

6. Which list of foods best describes your total fat intake?

A	*B*
*Skim or lowfat milk and dairy products	*Whole milk, cream, butter
*Baked, broiled, steamed foods	*Cheeses (especially those high in fat, that is, cream cheese, cheddar, roquefort)
*Small amounts of polyunsaturated vegetable oils (i.e., soy, corn, safflower)	*More than 8 ounces of any meat per day
*Few bakery products	*Luncheon meats, bacon, sausage
*Use more poultry, fish; limit meat	*Fried foods

   List A ○ | *Moderate Amounts of Both Groups* △ | *List B* □

7. How many times a week do you eat out?

   0-2 times per week ○ | 3-4 times per week △ | 5 or more times per week □

8. How many cups of coffee, tea, or cola do you drink per day?

   0-1 cup per day ○ | 2-3 cups per day △ | 4 or more cups per day □

9. How many alcoholic beverages do you have a week (one 12-ounce can of beer is equal to one 4-ounce glass of wine OR 1-ounce distilled liquor - scotch, gin, vodka, whiskey, etc.)?

   None ○ | 1-7 per week △ | 8 or more per week □

10. Do you take time for leisurely, relaxing meals?

    Always ○ | Sometimes △ | Never □

HOW TO CALCULATE YOUR SCORE: Count the total number of ○△□
Score 3 points for each ○ _____
Score 2 points for each △ _____
Score 1 point for each □ _____
Total Score: _____

The nutritionist will help you to interpret your score and will provide some helpful hints to improve your diet.

(Adapted from Kaiser Permanente Medical Center, Vallejo, CA)

Nutrition Self-Assessment Questionnaire Interpretation Sheet

If your **Total Score** is between:

21-30 Points	Your rating is *GOOD.* Congratulations! "Good" indicates that you have commendable eating habits and awareness of the importance of nutrition in keeping healthy. Keep up the good work and maintain (or better yet, improve) this rating.
12-20 Points	Your rating is *FAIR.* You are practicing some of the principles of good nutrition, but by following some of the recommended guidelines as discussed with a nutritionist, you can increase your eating to "GOOD". In doing so, you can improve your nutritional status and your health.
6-11 Points	Your rating is *POOR.* You are taking unnecessary risks with your health. Your eating habits need to be changed if potential health problems are to be avoided. Start your improvements by discussing your habits with a nutritionist and choose one or more to improve upon.

Now that you've scored your eating habits, you know what you're doing right and you may have discovered some areas that you need to improve upon. You may feel that you want to change many habits right away, but our advice is to take your time. Food preferences take years to develop so it will take time to change these habits. The best way is to make changes gradually - one or two at a time. The direction of your efforts should be aimed toward those actions that are above the circles in each question.

(Adapted from Kaiser Permanente Medical Center, Vallejo, CA)

Lesson 3: Food Choices

Target Group:
Pregnant Teenager

Objectives:
1. Given a daily food guide such as "Food for the Teenager during Pregnancy," the teenager will state the recommended number of daily servings from each of the food groups.
2. After recording on a sheet of paper her dietary intake for the past 24 hours, the teen will use the food guide to write down on the attached food group worksheet the foods she would eat to make up any deficiencies in the food groups.

Materials Needed:
Pen or pencil
Pamphlet: Daily food guide
Handouts: Sheet of paper
Food group worksheet

Learning Activities:
Review food groupings with teens (what foods belong in what groups, the amount of food that makes a serving, and the number of servings from each group recommended for the pregnant teenager.) Illustrate portion sizes with the use of various glasses, cups, spoons, and food models. Ask teens to record their dietary intake for the past 24 hours on a piece of paper. Have them transfer the foods and the approximate amounts to the attached form, separating them into food groups. Have teens then determine how many, if any, servings they are lacking in each food group. Then ask each teenager to write down the foods they would eat to make up any deficiencies in the food groups.

Suggested Evaluation Activities:

1. Ask teens to write another menu for tomorrow that meets all the food group requirements for them. While working on their menus, stress that a wide variety of foods is not difficult to incorporate in the diet, and provide examples to illustrate that many foods high in nutrition are relatively low in cost.

2. Have teens describe a typical day's food choices for them using three dimensional or paper food models. Attach these to a felt board and then have teens discuss how to improve their choices.

3. Ask teens to think of what they had for breakfast and lunch and then what they would need for dinner or supper to get a full day's measure of good nutrition.

4. Have teens think of good—but unusual—breakfasts and snacks.

Variations on the Lesson Plan:
Discuss contributions of combination and fast foods to each of the food groups.

(Lesson Plan adapted from "Nutrition Curriculum on Life-Cycle Nutrition Needs." Nutrition Education and Training Project. Santa Clara County Child Health and Disability Prevention Program, California)

Food Groups	Food Eaten During 24 Hours	Total Servings Eaten	Total Servings Needed	Difference
Milk				
Meat/Legume				
Vegetable/Fruit				
Bread/Cereal				

Lesson 4: Drugs, Tobacco, and Alcohol During Pregnancy

Target Group:
Pregnant Teenagers

Objectives:
1. Teens will state one harmful effect of taking drugs during pregnancy.
2. Teens will state a possible consequence of smoking during pregnancy.
3. Teens will name two health risks associated with excessive alcohol consumption during pregnancy.

Materials:
Film on the effects of alcohol during pregnancy such as "Alcohol - Crisis for the Unborn." Contact your local March of Dimes Chapter.

Learning Activities:

1. Review the maternal and fetal exchange system so teens understand how drugs and alcohol pass from the pregnant woman to her fetus.

2. Discuss the harmful effects of drugs taken during pregnancy. Babies born to heroin users may be addicted at birth and will experience withdrawal symptoms at birth. Mood-altering drugs such as tranquilizers or antidepressants may be harmful to the baby when taken during pregnancy. Since most drugs cross the placenta, no drugs, not even over-the-counter medicines, should be taken without the advice of a physician.

3. Discuss risks of smoking during pregnancy: Explain that mothers who smoke during pregnancy, particularly in the last trimester when the baby is rapidly gaining weight, are more likely to deliver infants smaller in size, which increases the risk of perinatal mortality. Explain how this can happen.

4. Introduce the film on the effects of alcohol, "Alcohol: Crisis for the Unborn," or a similar film. Explain how alcohol is transferred from the mother to the fetus. Explain that pregnancy changes your life in some important ways, and women may experience stress during this period. Ask teens to consider how they would advise a friend if she were drinking during pregnancy. (Possible discussion topics: 1. Harmful effects of alcohol on the baby. 2. Alcohol can "fill you up" so you don't want to eat.)

5. After the film, discuss the following:
What is meant by "fetal alcohol syndrome"? Why is it difficult to know if a pregnant woman is drinking? What level of alcohol is harmful? What options are available for women who have the need to drink because they are anxious or depressed?

6. Discuss how alcohol affects the nutritional status of an individual. Alcohol contributes calories but not nutrients. People who drink are often malnourished because they consume a lot of calories from the alcohol and cut down on foods high in nutrients. The breakdown and elimination of alcohol by the body uses up vitamins and minerals that are not replaced, leading to malnutrition.

Evaluation:

Oral or written assessment of the teenager's awareness of the risks of taking drugs, smoking, and drinking during pregnancy.

At the next visit, compare the amount of cigarettes smoked, alcohol consumed, and drugs used by teenagers with the amounts reported on their initial visit. Reinforce any improvement.

(Lesson plan adapted from "Nutrition during Pregnancy and Lactation." Connecticut Nutrition Education and Training Program.)

Handouts for Teenagers:
Limited copies of the pamphlets listed below are available free of charge.

1. "Should I Drink?"
   National Clearinghouse for Alcohol Information
   Box 2345
   Rockville, MD 20852

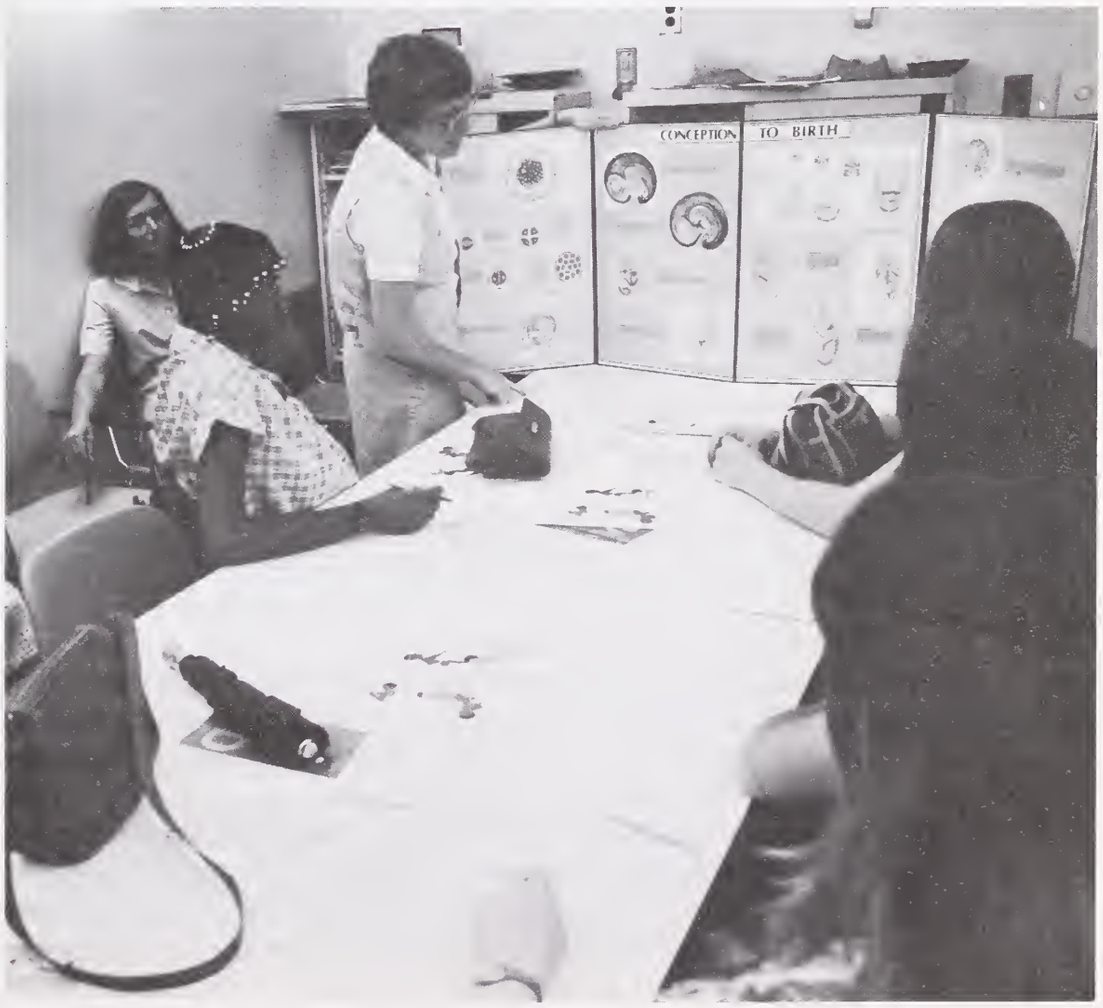
2. "Deciding about Drugs: A woman's choice"
   National Clearinghouse for Drug Abuse Information
   P.O. Box 416
   Kensington, MD 20795

Appendix

The Effects of Drugs, Tobacco, Alcohol, and Caffeine on the Fetus

Drugs and Alcohol

Women need to be concerned about the effect their use of drugs can have on their baby. Any drug—nicotine, caffeine or alcohol, over-the-counter drugs, or prescription medicines—has an effect on our bodies. If a woman is pregnant, many of these drugs also affect her baby because they cross through the placenta. Different drugs have different effects—some minor and temporary, others major. The same drug may have different effects at different times during pregnancy. Since the fetus is most sensitive to drugs during the first 12 weeks of pregnancy, women who think they may be pregnant should be careful about the drugs they use. In general, pregnant women should take drugs only on their doctor's advice. They should also avoid tobacco and alcohol. Too much alcohol can lead to the fetal alcohol syndrome, that is, babies born with a variety of physical and mental handicaps. More information about this and the effects of other drugs on unborn babies follows:



Drug Use During Pregnancy

Drug	Effect on Fetus	Safe Use of Drug
Nicotine	Heavy smoking can lead to low birth weight babies, which means that the baby may have more health problems. Especially harmful during second half of pregnancy.	Should be avoided.
Alcohol	Daily drinking of more than 2 glasses of wine, or a mixed drink, can cause "fetal alcohol syndrome." Babies tend to low birth weight, mental retardation, physical deformity, and behavioral problems including hyperactivity, restlessness, and poor attention spans.	Should be avoided.
Aspirin	During last 3 months of pregnancy frequent use may cause excessive bleeding at delivery, and may prolong pregnancy and labor.	Should be taken only under doctor's supervision.
Tranquilizers	Use during the first 3 months of pregnancy may cause cleft lip or palate or other congenital malformation.	Avoid if you might become pregnant and during early pregnancy. Use only under doctor's supervision.
Barbiturates	Mothers who have taken large doses may have babies who are addicted. Babies may have tremors, restlessness, and irritability.	Use only under doctor's supervision.
Amphetamines	May cause birth defects.	Use only under doctor's supervision.

Reprinted from *Deciding About Drugs,* Alcohol, Drug Abuse, and Mental Health Administration, Public Health Service, Department of Health and Human Services, 1979.

Alcohol

Chronic, heavy use of alcohol during pregnancy can alter fetal growth and development. It can lead to fetal alcohol syndrome (FAS). This is a specific pattern of malformations that can develop during pregnancy. These include growth retardation, development delay, craniofacial abnormalities, and limb defects. FAS occurs at a rate of about 3 to 5 live births per 1,000. The consumption of about 90 milliliters absolute alcohol or more per day (e.g. about four average drinks) is considered to represent a risk to the fetus. The FAS is established clearly only as a complication of chronic alcoholism, a condition associated with many unfavorable influences on health, making it impossible to state with certainty whether or not ethanol is the specific teratogen. Certain observations suggest that moderate alcohol consumption may adversely affect fetal growth and development (Hanson

et al, 1978), but these data require confirmation. Therefore, it is currently not possible to state a level of ethanol consumption that can be regarded as safe during pregnancy.

Chronic use of alcohol can have secondary effects on nutrition. Alcohol can affect appetites and replace food and, therefore, nutrients in the diet. Also, alcohol has reportedly decreased absorption of some nutrients. The possible role of secondary nutrient deficiencies on the expression of FAS is not known.

Because the nutritional status of alcoholics tends to be poor, it is prudent to give vitamin-mineral supplements to women who admit to chronic alcohol use during pregnancy.

Adapted from Nutrition Services in Perinatal Care, National Research Council, 1981.

Smoking

Smoking during pregnancy is detrimental to the developing fetus, according to the DHHS Office on Smoking and Health. It summarizes adverse effects of cigarette smoking during pregnancy as follows:

"**1.** Babies born to women who smoke during pregnancy are on the average 200 grams lighter than babies born to comparable women who do not smoke. The whole distribution of birth weights of smokers' babies is shifted downward, and twice as many of these babies weigh less than 2,500 grams compared with babies of nonsmokers. There is abundant evidence that maternal smoking is a direct cause of the reduction in birth weight.

"**2.** Birth weight is affected by maternal smoking independently and to a uniform extent, regardless of other determinants of birth weight. The more the mother smokes, the greater the reduction in birth weight of the baby.

"**3.** The ratio of placenta weight to birth weight increases with increasing levels of maternal smoking. This increase may signify a response to reduced oxygen availability due to carbon monoxide and may have some survival value for the fetus.

"**4.** There is no overall reduction in the duration of gestation with maternal smoking, indicating that the lower birth weight of smokers' infants is due to retardation of fetal growth.

"**5.** The pattern of fetal growth retardation that occurs with maternal smoking is a decrease in all dimensions: body length, chest circumference, and head circumference are smaller if the mother smokes.

"**6.** Studies of long-term growth and development give evidence that smoking during pregnancy may affect physical growth, mental development, and behavioral characteristics of children at least up to the age of 11.

"**7.** Overwhelming evidence indicates that maternal smoking during pregnancy affects fetal growth rate directly, that fetal growth rate is not due to characteristics of the smoker rather than to the smoking nor mediated by reduced maternal appetite, eating, and weight gain."[1]

"It has been determined that if a woman gives up smoking by her fourth month of pregnancy, her risk of delivering a low birthweight baby is similar to that of a nonsmoker."[2]

1. "Pregnancy and Infant Health." Publication No. (PHS) 79-50069. Reprinted from "Smoking and Health—A Report from "Smoking and Health—A Report of the Surgeon General." DHEW Publication No. (PHS) 79-50066, 1979.

2. "The Health Consequences of Smoking for Women—A Report of the Surgeon General."

Both from U.S. Department of Health, Education, and Welfare, Public Health Service, Office on Smoking and Health, Rockville, MD 20857

Caffeine

Caffeine is a central nervous system stimulant naturally present in coffee, tea, and chocolate. It is also in the kola nut extract used in colas—though a good deal more is added to these and "pepper" drinks than is naturally present in the extract. Caffeine is also found in many drugs that can be bought without prescription, such as headache, cold, allergy, and stay-awake pills as well as in some prescription drugs. In pregnant women, caffeine is known to cross the placenta. It also has been detected in the milk of mothers who breast-feed. As a general rule, pregnant women should avoid substances that have drug-like effects and that can cross the placenta.

A study by the U.S. Food and Drug Administration (FDA) showed that caffeine, when fed to pregnant rats, caused birth defects in their offspring. Rats process caffeine in their bodies differently than people do. Federal health officials stress that they have no evidence proving caffeine can cause, or has caused, a birth defect in a human. Further study is needed before it is known for sure what role caffeine plays, if any, in causing human birth defects. Nevertheless, FDA believes that pregnant women should be aware of products that have caffeine in them, and avoid them or use them sparingly.

Adapted from "Caffeine and Pregnancy," HHS Publication No. (FDA) 81-1081. U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration, Office of Public Affairs, 5600 Fishers Lane, Rockville, MD 20857.

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Food and Nutrition Service
Program Aid No. 1304

U.S. Department of Health
and Human Services
Public Health Service

March of Dimes
Birth Defects Foundation

October 1981

At Home Or Away... Eat Well For You And Your Baby

U.S. Department of Agriculture
Food and Nutrition Service
Program Aid No. 1305

U.S. Department of Health
and Human Services
Public Health Service

March of Dimes
Birth Defects Foundation

October 1981

Why Not Deliver Your Best!

While you're pregnant:

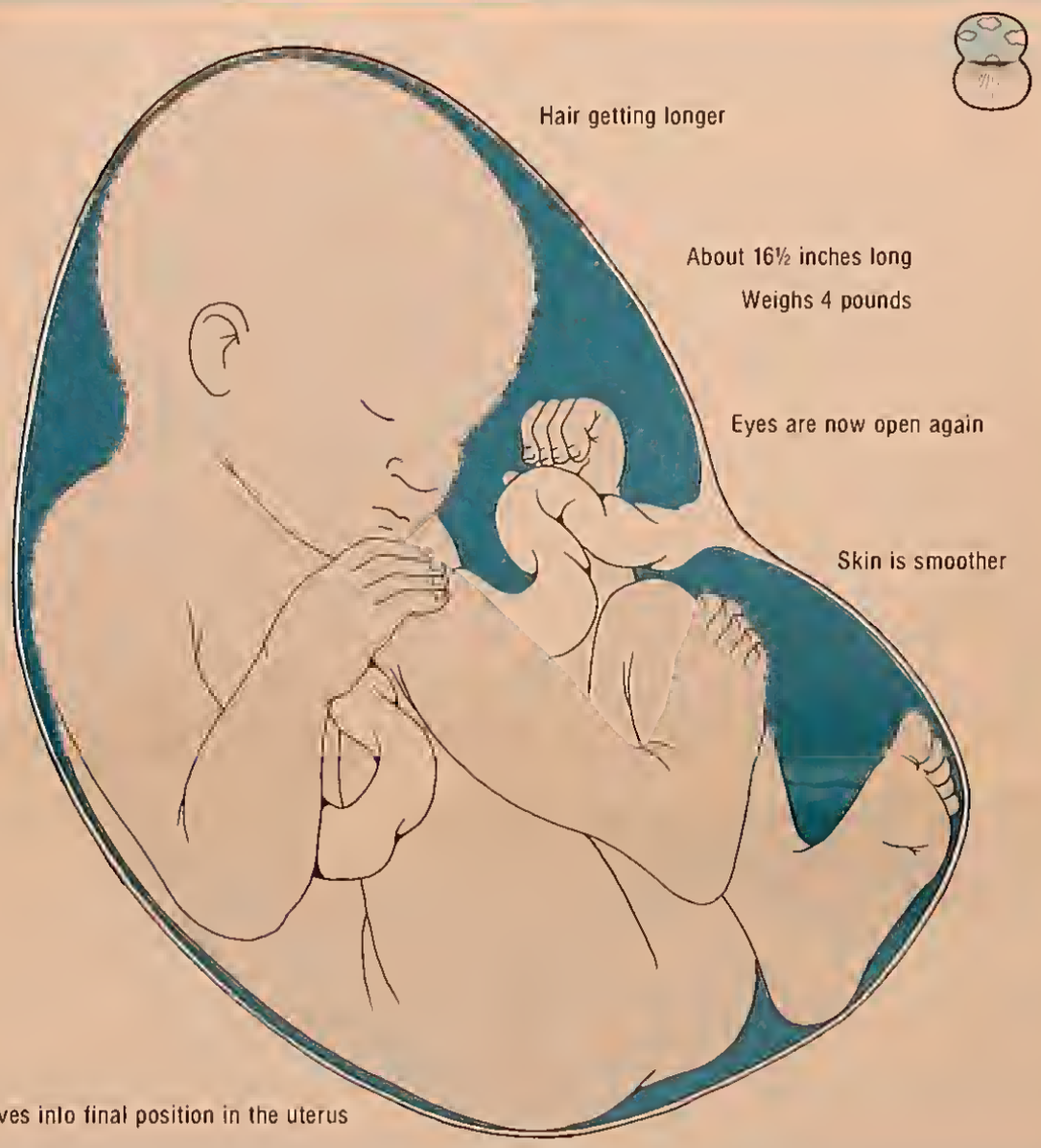
- See your doctor regularly.
- Eat a nutritious diet.
- Avoid drugs,* alcohol, and cigarettes.

*Unless prescribed by your doctor

HOW A BABY GROWS

	1 MONTH	2	3	4	5	6	7
YOUR BABY	At this stage, baby is called an "Embryo" About ¼ inch long Heart, brain and lungs beginning to form "Bag of waters" begins to grow, along with the embryo Tiny heart starts to beat—usually by the 25th day Though still tiny, by end of month embryo is 10,000 times larger than the egg it started from	Baby is now called a "Fetus" Arms and legs beginning to form Fetus begins to have muscles and skin Hands and fingers now beginning to form Legs show beginnings of knees, anktes and toes Face starts to form Brain, stomach, liver and other body organs begin to form	Fetus is about 3 inches long and weighs 1 ounce Baby can now open and close mouth, also swallow Beginning to move hands, kick legs, turn head Eyelids close, but eyes will open again around 7th month First ditterences between boy and girl can now be observed	8 to 10 inches long by end of month Baby growing very rapidly Now weighs about 6 ounces Umbilical cord continues to grow and thicken, in order to carry enough blood and nourishment to the fetus	By end of this month, fetus weighs 1 pound About 1 foot long Eyelashes appear and nails grow Baby's heartbeat can now be heard through stethoscope!	About 14 inches long Weighs 1½ pounds Can now kick and cry Baby can suck its thumb and grip firmly with its hand	Head grows longer Weighs 2 - 2½ pounds Moves arms and legs freely Baby exercises by kicking and stretching
YOUR BODY	No weight gain Breasts may begin to feel tender Possible nausea—"Morning sickness"	No noticeable weight gain Need to urinate more Possible nausea Possible feelings of tiredness	Small weight gain (2-3 pounds) You may begin to perspire more than betore Your body now needs lots of iron, calcium and vitamins to nourish the baby	Weight gain: 3-4 pounds Belly beginning to show You may feel taint movement of the baby You will probably start to need maternity clothes this (or next) month	Weight gain: 3-4 pounds Possible shortness of breath Possible fluttering movements felt as baby stretches You need: 8 hours sleep a night—plus at least one short rest period	Weight gain: 3-4 pounds Possible backache (Wear low-heeled shoes or flats, for better balance) Baby's movements now usually felt Hygiene is important—be sure to bathe everyday!	Weight gain: 3-4 pounds Possible blotchy skin (But this will clear up after the baby is born) Ankles may swell from standing—This is normal, and can be relieved by lying down Your baby is now two-thirds grown, and you will be able to feel it moving and kicking inside your uterus
YOUR HEALTH	Get medical check-up Stop all pills and medicines until you check with your doctor or clinic Stop cigarettes and alcohol Avoid all X-rays	Get medical check-up Eat healthful, nourishing food: Plenty of protein, calcium, vitamins, minerals, lots of fluids (milk, water, fruit juice) No need to cut down on salt unless your doctor tells you to	Get medical check-up You should be starting to gain some weight now—so keep eating—and keep gaining Take in plenty of good calories. Whole grain breads and cereals, dry beans, white potatoes, brown rice, tish, poultry, milk, eggs, yogurt	Get medical check-up You and the baby now need lots of vitamins and iron—you can get these by eating good toods—but your doctor may want to give you extra iron or vitamin pills	Get medical check-up Smoking from here on can be EVEN MORE dangerous to the baby Continue healthful food habits Continue moderate, normal exercise (Walking is especially good!)	Get medical check-up Continue healthful eating You may have a little constipation or indigestion (heartburn)— If you're constipated, do NOT take laxatives—Check with doctor first If you have indigestion, do NOT take baking soda—Check with doctor first	Get TWO medical check-ups this month Continue good food habits Continue light exercise Get 8 hours of sleep every night Remember—Drugs, cigarettes and alcohol can harm your baby!

March of Dimes Developmental Time-Line Chart



Hair getting longer

About 16½ inches long
Weighs 4 pounds

Eyes are now open again

Skin is smoother

Moves into final position in the uterus

Weight gain: 3-5 pounds

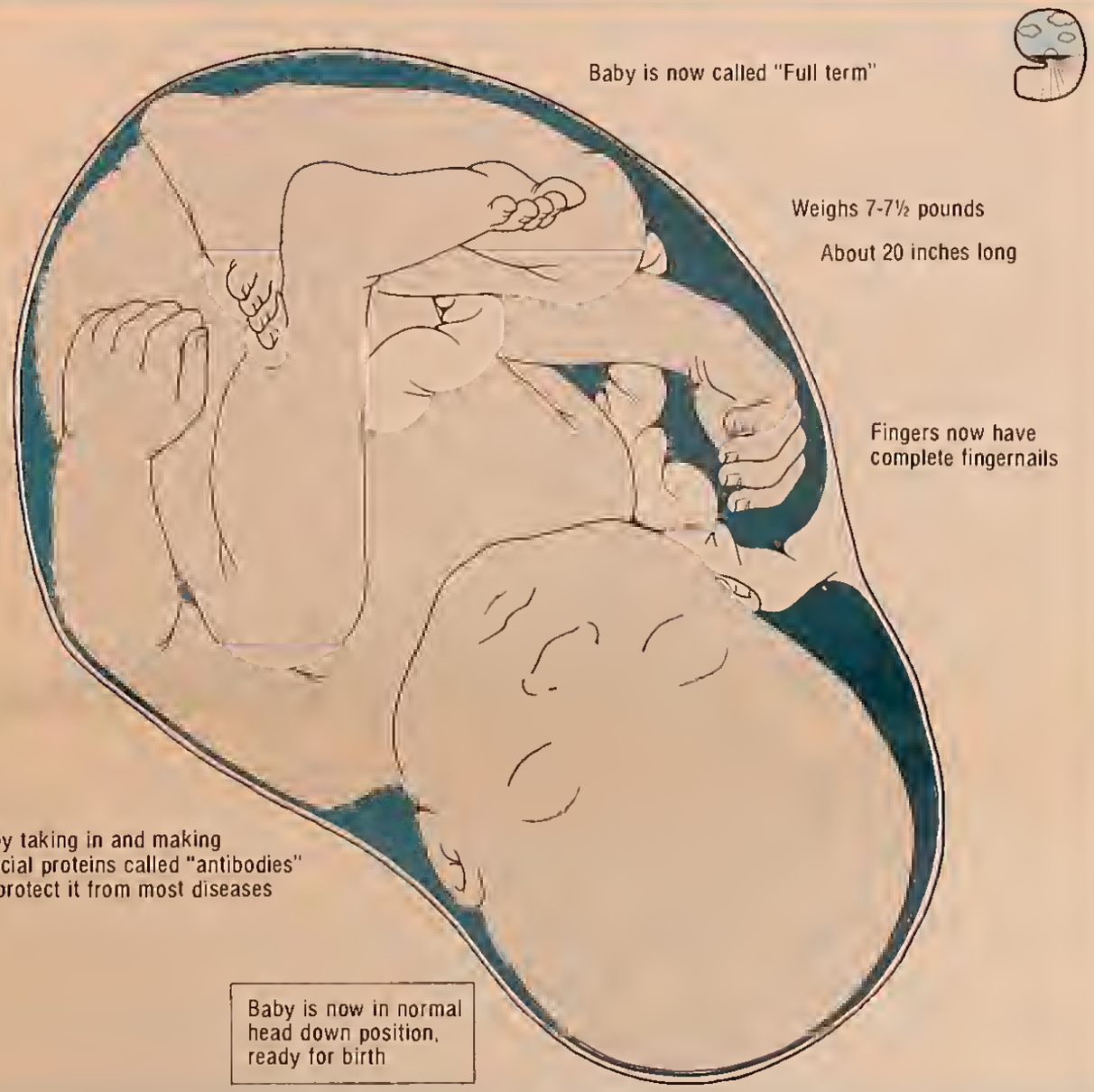
Continue good food and cleanliness habits (Taking a bath or shower each day is important)

Continue normal daily routine—avoid heavy lifting, to keep from hurting your back

Get TWO medical check-ups

Have a nap or rest period every day (It is best to rest on your left side)

Check with doctor or clinic at once if you have—
..Any unusual pains or swellings
...Any unusual sickness or dizziness
. .Any spotting (flow of blood or water from vagina)



Baby is now called "Full term"

Weighs 7-7½ pounds
About 20 inches long

Fingers now have complete fingernails

Baby taking in and making special proteins called "antibodies" to protect it from most diseases

Baby is now in normal head down position, ready for birth

Weight gain: 3-5 pounds

Uterus has now moved a few inches lower

Now you may feel more comfortable—your breathing will be easier

You may see little bulges (caused by baby's elbows or knees)

As birth draws near, be sure to follow your doctor's instructions carefully!

Get FOUR medical check-ups—one each week

Don't overwork—rest—try to stay comfortable

Eat nourishing meals—drink plenty of liquids

Limit your travel—Don't go on very long trips that take you too far from home

Do you know about labor pains, and other birth facts? Ask your doctor or nurse.

And remember: Having a baby is natural and normal!